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• **Standard Number:** 1910.1000

April 22, 1993

Gregory R. Wagner, M.D.
Centers for Disease Control
National Institute for Occupational
Safety and Health-ALOSH
944 Chestnut Ridge Road
Morgantown, WV 26505-2888

Dear Dr. Wagner,

Thank you for your concern regarding wood dust sampling by OSHA expressed in your letter of March 22, 1993. The reference to respirable sampling in the written record was a typographical error. We have never recommended respirable sampling for wood dust for precisely the reasons you cited in your letter. The correct information in the OSHA Computerized Information System (OCIS) reflects the appropriate reference to total dust sampling. As a result of your letter we added a notation specifically to indicate that no cyclone should be used.

For your information, the IMIS code W103 cited was entered for our standard 29 CFR 1910.1000 Table Z-1-A, in place between 1 March 1989 through 22 March 1993. The standard in this table was 5 mg/m(3) total dust, 10 mg/m(3) STEL (total dust). This standard was vacated and the current standard is 15 mg/m(3) total dust cited in 29 CFR 1910.1000 table Z-3 Inert or Nuisance Dust.

Thanks again for your concern. Should you have any further issues do not hesitate to contact me.

Sincerely,

Floyd A. Madsen
Director

March 22, 1993

Mr. Floyd Madsen, Director
Quality Control
Salt Lake City Analytical Laboratory
P.O. Box 15200
Salt Lake City, Utah 84115

Dear Mr. Madsen:

It has come to the attention of the National Institute for Occupational Safety and Health (NIOSH) that there is some confusion concerning wood dust sampling. It was reported to NIOSH that 10mm nylon cyclones are being used for personal wood dust monitoring which is inconsistent with Occupational Safety and Health Administration's Sampling and Analytical Methods described in the Federal Register 54:12 (January 19, 1989).

Admittedly, wood dust exposure is difficult to measure accurately because of the vast size range of its particles (from less than 1um to greater than 100 um in aerodynamic diameter). Use of the 10 mm nylon cyclone is inappropriate because it is designed to selectively collect particles in the respirable size range, appropriate only when the concern is with dose to the gas exchange region of the lung alone. This is clearly not the case with wood dust. Consequently, the exposure as measured by the appropriate OSHA gravimetric method employing a closed-face 37 mm cassette would be considerably underestimated with the cyclone, thereby potentially compromising workers' health.

A recent journal article by Sass-Kortsak, et al. from Applied Occupational and Environmental Hygiene [8(1):31-7. 1993], "Comparison of the 10 mm Nylon Cyclone, Horizontal Elutriator, and Aluminum Cyclone for Silica and Wood Dust Measurements," describes electrostatic charge as another shortcoming of sampling wood dust with a nylon cyclone. A NIOSH study concluded, "that the nylon cyclone is not appropriate for respirable wood dust because wood dust

acquires a static charge and sticks to the nylon cyclone, although this drawback was not convincingly demonstrated to be related exclusively to wood dust." (McCammon, C.S., et al. "Industrial Hygiene Characterization of Automotive Wood Model Shops." Am. Ind. Hyg. Assoc. J. 46:343-9. 1985.)


Because of this concern, we checked in the Integrated Management Information System (IMIS) codes provided by OSHA in the Health Derived File. Currently, Code W103 for "Wood Dust (Hardwoods and Softwoods)", refers to Particulate NOT Otherwise Regulated (PNOR)(respirable) which, of course, mandates a 5.0 mg/m(3) respirable dust Permissible Exposure Limit (PEL), and a Short Term Exposure Limit (STEL) of 10.0 mg/m(3). According to the records, Code W103 appears to have been used since 1989; and in 1990 and 1991, compliance officers used nylon cyclones as specified by this code approximately 50% of the time when wood dust was sampled. A listing of all State and Federal OSHA inspections using Code W103 from 1989 to 1991 is enclosed.

Since the PEL for hardwoods is 5.0 mg/m(3) total dust, and the PEL for softwoods is 5.0 mg/m(3) total dust, the PEL for wood dust from hardwoods and softwoods combined should also be 5.0 mg/m(3) total dust. This is allowable under current regulations and alleviates the need for any separate sampling category, such as W103, for combined exposures.

Because there appears to be no need for a separate category for combined exposure to dust from hardwoods and softwoods and because the use of the nylon cyclone and the PNOR (respirable) PEL are likely to result in worker overexposures going undetected, NIOSH strongly recommends that use of the code W103 be **discontinued** for wood dust sampling.

Sincerely,

Gregory R. Wagner, M.D.
Director
Division of Respiratory Disease Studies

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